NRC NEWS

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Maintaining a Competent and Dedicated Workforce

The Honorable Peter B. Lyons
Commissioner
U.S. Nuclear Regulatory Commission

Cape Fear Community College,
Nuclear Maintenance Technician Program Accreditation Ceremony

May 1, 2008

Good morning. I'm honored to join you today, as you celebrate the accreditation of your new program, an Associate of Applied Science degree in Nuclear Maintenance Technology. I also note that Cape Fear Community College celebrated its 50th anniversary in early April, another tremendous achievement. Such accomplishments are not possible without dedicated students, college faculty and administration, and support of the State and local government, the local community, and industry partnerships. You should be very proud of both these accomplishments, and I wish you continued success.

The Nuclear Maintenance Technology program is an industry/academia partnership of the Cape Fear Community College, GE-Hitachi Nuclear Energy, and Granite International. This program prepares students to become field service technicians with the necessary skills to perform maintenance, repairs, and modifications to licensed nuclear power plants in the U.S. and overseas. I believe that augmenting the college's courses in the sciences and humanities, with practical experience at nuclear facilities and with specialized training at GE-Hitachi Nuclear Energy's facilities in California and in North Carolina, is a very beneficial innovation that will ensure students are well prepared for these careers.

I would like to offer some thoughts from the perspective of a nuclear regulator. My remarks today are my own personal views, and I must note that they may not represent the collective view of the Commission.

NRC Scope of Responsibilities

The scope of NRC oversight responsibilities is very broad. We have oversight of uranium mining, uranium conversion, uranium enrichment, operating nuclear power reactors as well as new reactors, transportation of radioactive materials, storage of spent nuclear fuel, disposal of

radioactive waste, and medical and industrial applications of radioactive material. NRC regulations are designed to protect the health and safety of both the public and occupational workers, in addition to protecting the environment, from radiation hazards.

The NRC is not an advocate for nuclear power. We are responsible for regulating domestic activities to assure adequate safety for nuclear facilities and uses of radioactive material in a manner that promotes the common defense and security. The NRC also licenses the import and export of radioactive materials, participates in international nuclear activities, including multilateral and bilateral safety and security activities, and works closely with its international counterparts to enhance nuclear safety and security worldwide.

One of the NRC's primary objectives is to provide for regulatory stability in our licensing and inspection programs. The NRC is a strong and independent regulator. We hold our licensees accountable; we articulate our requirements clearly, and we are responsive to licensees' and the public's legitimate needs and concerns. All stakeholders and especially the public are made aware of the status and progress of issues of interest to them to the maximum extent possible.

In addition, 35 States *[in orange on this map]* including North Carolina, have agreements with the NRC under which they assume regulatory responsibility to license and inspect certain radioactive materials for civilian purposes in their respective States. In all, these States regulate about 85 percent of the more than 22,000 radioactive material licenses in the U.S. The NRC works closely with these "Agreement States" to ensure a consistent nationwide safety and security program. However, NRC maintains authority over all nuclear power plants, research and test reactors, and fuel cycle facilities.

I've done quite a bit of traveling for the Agency. Visits to foreign countries, as well as the many visits I have made to nuclear facilities in the U.S., reinforce to me that we have a very solid regulatory system here in the U.S. - one with which I'm proud to be associated. Our regulatory standard of adequate protection, the independence of the NRC, the responsibility that we have for both security and safety, and the openness of our regulatory processes are all aspects that I believe serve the American people very well.

In addition, our visits to other countries with nuclear energy programs have impressed upon me the extent to which nuclear energy is a global enterprise, with countless contributions from a very wide range of countries. Such visits are also a reminder that, while the U.S. originated much of the nuclear technology in use around the world, there are many situations in which the most advanced applications of these technologies are now occurring abroad.

Nuclear Renaissance

As you know, the U.S. is undergoing a resurgence of interest in nuclear power. This upsurge in current activity is not surprising. The Department of Energy's statistical office estimates that the global demand for electric power generation is expected to rise sharply over the next 20 years. In the U.S., electricity demand is expected to increase by 50 percent in the next 30 years. If nuclear power were merely to maintain its current share of the electricity supply in this country, the industry would need to add 40 to 50 new nuclear power plants. I believe that there is clear evidence of a renaissance in nuclear energy on a global scale, and many events point toward a renaissance here as well.

I believe that the outlook for the safe and secure use of nuclear energy is very positive in light of the improved state of the technology, and in light of the expectations of the world for an improved quality of life and for socio-political stability. But I further believe that this positive outlook will continue only insofar as safe operations continue to be demonstrated for the existing fleet of nuclear power reactors worldwide. Today, in the U.S., reactor safety performance continues to be very sound. Safety measures, including performance indicators and inspection findings, are strong for most plants. Safety of the currently operating reactor and materials licensees continues to be NRC's top priority. Construction of new nuclear plants in the U.S. will not be an option without the continued safe operation of reactors today. But monitoring safety indicators by itself is not enough—it is essential that both the industry we regulate, and the NRC, maintain a continuous commitment to safety and the technical competence to achieve it. Commitment to safety and security also means that each licensee, vendor, consultant, and worker in the nuclear field must understand the safety implications of his or her job and have a sense of dedication to do it well.

New-Reactor Activities

Until recently, the NRC had not received an application for a nuclear power plant in over 25 years. The U.S. nuclear industry has announced that over 20 license applications may be submitted to the NRC over the next few years, representing a potential total of over 30 new nuclear power reactors in 14 different States. In addition to the new-reactor license applications, we are expecting applications for several new uranium mining operations; and we could be receiving an application for a high level waste repository at Yucca Mountain later this year.

The NRC has already begun review for this new wave of nuclear power plant license applications. Since September 2007, the NRC has received license applications for two General Electric Advanced Boiling Water Reactors (ABWR), ten Westinghouse AP1000 reactors, two General Electric Economic Simplified Boiling Water Reactors (ESBWR), and an Areva Evolutionary Pressurized Reactor (EPR). NRC may also receive additional applications for two AP1000 reactors, three ESBWRs, six EPRs, and two Mitsubishi USAPWRs by the end of this calendar year. As a result, the NRC is probably the busiest we have been in our history, and I don't see this changing in the foreseeable future.

In addition, both the NRC and the U.S. nuclear industry have a lot of work ahead in preparing for new construction under the new licensing and approval process of our regulations. The NRC has been developing and will be implementing its new Construction Inspection Program out of our Atlanta, Georgia, regional office. Here also, much of the efficiency and timeliness of our inspection activities will depend on how well industry establishes and adheres to planned construction schedules.

Challenge of the Nuclear Industry and the NRC

The human capital challenge that confronts the nuclear industry, academia, and the NRC is immense. Future projections indicate that we need more trained workers, but many factors limit our ability to rapidly increase this workforce. One such factor is the expected retirement of the current workforce. It has been estimated that about 35 percent of those working at U.S. nuclear utilities will be eligible for retirement in the next 5 to 10 years and that 90,000 new workers will be needed by 2011, just to continue operating the existing plants. The potential labor shortage not only affects utilities, but also impacts the entire nuclear infrastructure,

including national laboratories, Federal and state agencies, nuclear technology vendors and manufacturing companies, nuclear construction companies, and university nuclear engineering departments. However, the good news is that student enrollment and graduation rates in nuclear engineering, radiation health programs, and programs such are yours as increasing. But even with these increases, there will still be a personnel shortfall, based on the projected demand.

These issues of human capital have concerned me since becoming a Commissioner, and I have consistently encouraged all of us engaged in this field, talk with students at all levels to develop their interest in science and technology careers and vocations. At NRC, in preparation for our expanding workload, we have recently been trying to add about 200 technical staff per year and want to continue that rate through 2008. But that objective is complicated by the retirement of existing staff.

For example, in Fiscal Year 2007, we hired 428 new staff but lost 222 for an actual net gain of 206. Furthermore, once we hire good people in this competitive employment environment, we want to keep them. Therefore, our challenge at the NRC includes maintaining our standing as one of the best places to work in Federal government and introducing our employees to the many satisfactions of a career in public service. There is only a single pool of talent to fill all our vacancies, and the pool must be large enough to supply both industry and the regulator with the talent we both need.

No nuclear power or fuel cycle facility can operate without trained and dedicated people who have made safety a priority. Of course, regulatory bodies must also have trained and knowledgeable staff. The global growth in nuclear power compels all of us to focus on training the next generation of construction workers, electricians, welders, engineers, operators, managers, and regulators.

For both the industry and the NRC, our success is founded upon the talents of many people dedicated to making a difference. A sufficient pool of such people must be cultivated in our school systems and university programs across our Nation and around the world. As I have noted, this is a shared challenge among government, industry, and academia. I am very pleased to see licensees working with their local community colleges and sponsoring classes and programs in universities. GE-Hitachi, Granite International, and the Cape Fear Community College should be very proud of their accomplishments. You will be making a real and lasting difference. I also look to the Department of Energy to continue to increase its support of our national laboratory infrastructure and university research programs to attract and retain highly qualified scientific and technical personnel.

To mitigate the long-term impacts of these shortages, the NRC utilized provisions of the Energy Policy Act of 2005 to award 27 grants in 17 states for our Nuclear Education Grant Program and to award 10 grants for our Scholarship and Fellowship Grant Program to universities.

The NRC's FY 2008 Nuclear Education Scholarship and Fellowship Program provides an additional $15 million to support education in nuclear science, engineering, and related trades. These funds are to be used for college scholarships and graduate fellowships in nuclear science, engineering, and health physics; faculty development grants supporting faculty in these academic areas; and scholarships for trade schools in the nuclear-related trades.

Closing

Nuclear power is a mature technology with significant potential to provide large amounts of emissions-free, baseload power. Other nations have reached a similar conclusion. However, it is important that nuclear energy expand in a way that supports global safety, security, and the environment. We must have a solid foundation of highly trained and skilled workers to ensure success for an increased safe and secure utilization of nuclear energy.

Last but certainly not least, I understand that in May several of you will graduate with an Associate of Applied Science degree in Nuclear Maintenance Technology. I offer my sincere congratulations to the graduates of this program and wish you continued success in your careers.

I would like to leave you with one thought today from Admiral Hyman G. Rickover, the father of the nuclear navy and of commercial nuclear power – the man who set the standard by which subsequent efforts have been measured. I recently read the fascinating account of how Admiral Rickover created his organization and the influence it had on the inception of nuclear power, by author Ted Rockwell in his book, "The Rickover Effect: How One Man Made a Difference." If you haven't read this book, I would strongly recommend it. I was struck by the timeless quality of the principles upon which he based his organization. Those principles ranged from absolute adherence to high standards; to maintaining strong technical capability; to constant training; to respecting radiation; to facing facts and learning from experience; and to taking total responsibility for one's decisions and actions. We must each commit to honor these principles, such that they remain alive in our thoughts and actions and form the core of our integrity and commitment to making a positive difference.

Thank you for your time today.